

REMARKS

Claims 64-67 are pending in this application.

In the Office Action dated March 10, 2005, the Examiner rejected claims 64-67. In particular, claim 64 was rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 4,086,378 to Kam et al. in view of U.S. Patent No. 5,848,767 to Cappa et al. In addition, claim 64 was rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 5,114,097 to Williams or U.S. Patent No. 4,593,870 to Cronkhite et al. in view of Kam et al. and Cappa et al. Also, claim 65 was rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 5,223,067 to Hamamoto et al. in view of Kam et al. and Cappa et al. Additionally, claim 66 was rejected under 35 U.S.C. 103(a) as being unpatentable over Hamamoto et al. as modified by Kam et al. and Cappa et al. as applied to claim 65 and in further view of U.S. Patent No. 4,150,084 to Arenas or U.S. Patent No. 3,995,080 to Cogburn et al. Finally, claim 67 was rejected under 35 U.S.C. 103(a) as being unpatentable over Hamamoto et al. as modified by Kam et al., Cappa et al., and Arenas or Cogburn et al. as applied to claim 66 and in further view of U.S. Patent No. 3,023,860 to Ellzey or U.S. Patent No. 4,003,533 to Carter et al.

Applicants would like to thank the Examiner for conducting an interview to discuss the pending claims on May 19, 2005, as summarized in the Interview Summary issued on that date.

As indicated above, Applicants have amended claims 64-67 to clarify the invention as discussed during the interview. Applicants respectfully request that in light

of these amendments and the remarks below that the Examiner withdraw the rejection of claims 64-67 and allow those claims to proceed to issue.

Rejection of Claim 64 Under 35 U.S.C. 103(a) Over Kam et al. in View of Cappa

Applicants have amended claim 64 to clarify that the outer skin, inner skin, frame, and core of the claimed structure are “simultaneously co-cured.” In light of this clarification, Applicants respectfully assert that claim 64 is not obvious over Kam et al. in view of Cappa et al.

As explained during the interview, the invention of claim 64 requires a one-piece closed-shape structure formed by co-curing of all the elements. In the claimed invention, the structure is formed from an outer skin, inner skin, frame, and core material. All those elements are co-cured simultaneously to form the structure. See, e.g., Specification at ¶¶ 214-238; Figs 9G, 36A-41. Claim 64, as originally drafted, was intended to require simultaneous co-curing. To further clarify this fact, moreover, Applicants have now amended claim 64 to specifically include the term “simultaneously.”

In contrast, the Examiner cannot show that Kam et al. or Cappa et al. disclose simultaneous co-curing of a structure including an outer skin, inner skin, frame, and core material, as claimed by Applicants. Specifically, Kam et al. teaches only a structure with an outer shell and isogrid panels. (Figure 1). Moreover, in Kam et al., rather than simultaneously co-curing the outer shell and isogrid panels to form the structure, the isogrid panels are formed separately by partially curing reinforcing fibers and a polymeric binder. (Col. 2, l. 60 - Col. 4, l. 48). The isogrid panels in Kam et al. are then placed on a forming tool along with the outer shell. (Col. 5, l. 23 - Col. 5, l. 57).

At this stage in Kam, and only after the isogrid panels have been formed by partial curing, the isogrid panels and outer shell are then co-cured to form the structure. (Col. 5, l. 58 - Col. 6, l. 6). In contrast, the frames of the Applicant's invention are not formed prior to curing of the structure; instead, they are formed at the same time by simultaneously co-curing the frames and other elements to form the structure. Similarly, Cappa et al. discloses only a structure with an inner skin, core, and outer skin, but is silent as to co-curing. (Final Office Action at 2). Therefore, since these references do not teach at least this element of simultaneous co-curing to form the structure, this rejection of claim 64 should be withdrawn.

Moreover, the Examiner has not demonstrated any motivation to combine the inner skin, outer skin and core structure of Cappa et al. with the outer shell and partially cured isogrid panel of Kam et al. to create a structure with a core, inner skin, outer skin, and frames formed by simultaneous co-curing. In fact, one of ordinary skill in the art would not have considered combining these references because the references actually teach away from Applicants' claimed invention.

Kam et al. utilizes partially cured isogrid panels to form the entire skin structure. (Col. 5, l. 29-33). One of ordinary skill in the art would not have considered combining the core of Cappa et al. with the structure of Kam et al. because the isogrid panels of Kam et al. form the structure. The use of core material would thus be redundant and unnecessary. Similarly, Cappa et al. uses core throughout the entire structure, so the use of isogrid panels in that construction would also be redundant.

Moreover, the structures disclosed by Kam et al. and Cappa et al. would not lead one of ordinary skill in the art to consider a co-cured structure. Kam et al. discloses only

a simple cylindrical structure. Similarly, Cappa et al. discloses only a simple octagon-shaped structure. These basic structures are well-served by the use of a single form of support and do not require consideration of different forms of support for different areas of the structure. Therefore, due to the simple structures, there would be no motivation to consider the combination of the core of Cappa et al. with the isogrid panels of Kam et al. In contrast, one advantage of the invention of claim 64 is that it allows for the creation of complex structures (such as an aircraft fuselage) that benefit from the use of core in certain portions of the structure and frames in other portions of the structure.

Therefore, since no motivation to combine Kam et al. and Cappa et al. has been demonstrated, this rejection should be withdrawn.

Rejection of Claim 64 Under 35 U.S.C. 103(a) Over
Williams or Cronkhite et al. in view of Kam et al. and Cappa et al.

Applicants also respectfully assert that claim 64 is not obvious over Williams or Cronkhite et al. in view of Kam et al. and Cappa et al. First, none of these references discuss the simultaneous co-curing of multiple elements to form the structure. As discussed above, this element is absent from both Kam et al. and Cappa et al. Similarly, Williams and Cronkhite et al. disclose only multiple-piece structures with an outer shell and frames and are silent as simultaneous to co-curing. (Final Office Action at 3). Therefore, none of the references cited by the Examiner include a structure "wherein the outer skin, inner skin, frame, and core material have been simultaneously co-cured."

In addition, the Examiner has not demonstrated any motivation to combine these four references. As discussed above, the Examiner has not shown that motivation to

combine Kam et al. and Cappa et al. exists. In addition, there is no motivation to combine Williams or Cronkhite et al. with Kam et al. and Cappa et al. to form the invention of claim 64 because Williams and Cronkhite et al. do not even mention co-curing.

Therefore, because the Examiner cannot show that these references teach all the elements of claim 64, and because the Examiner cannot show motivation to combine these references to create the invention of claim 64, Applicants respectfully request that the Examiner withdraw this rejection.

Rejection of Claim 65 Under 35 U.S.C. 103(a)

Applicants also respectfully assert that claim 65 is not obvious over Hammamoto et al. in view of Kam et al. and Cappa et al. Specifically, as with claim 64, claim 65 also requires simultaneous co-curing of all the elements to form the claimed structure. As discussed above, Kam et al. and Cappa et al. both lack this element. Similarly, Hammamoto et al. does not include any reference to co-curing, as the Examiner concedes. (Office Action at 3).

In addition, the Examiner has not shown that motivation to combine these references exists. As discussed above, the Examiner has not demonstrated any motivation to combine Kam et al. and Cappa et al. In addition, for the same reasons, there would be no motivation to combine Kam et al. and Cappa et al. with Hammamoto et al. Specifically, Hammamoto et al. does not disclose simultaneous co-curing of a structure including an outer skin, inner skin, frame, and core material, as claimed by Applicants. Therefore, the Examiner cannot show that one of ordinary skill in the art

would have utilized the structures of Kam et al. and Cappa et al. with the structure of Hammamoto et al.

Therefore, for all the above reasons, Applicants respectfully request that the Examiner withdraw the rejection of Claim 65.

Rejection of Claims 66-67 Under 35 U.S.C. 103(a)

For the reasons discussed with respect to claim 65, Applicants also respectfully assert that claims 66-67 are not obvious. Specifically, none of the additional references cited by the Examiner to reject these claims (Arenas, Cogburn et al., Ellzey, and Carter et al.) include any reference to simultaneous co-curing of the structure. Therefore, these references do not teach the elements missing from Hammamoto et al., Kam et al., and Cappa et al. nor do they provide any motivation to combine these references. Therefore, Applicants respectfully request that these rejections be withdrawn.

In view of the foregoing amendments and remarks, Applicant respectfully requests reconsideration and reexamination of this application and the timely allowance of the pending claims.

Please grant any extensions of time required to enter this response and charge
any additional required fees to our deposit account 06-0916.

Respectfully submitted,

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